

Building a Grid Ecosystem

ISGC 2009 – Grid Report from Asia Pacific

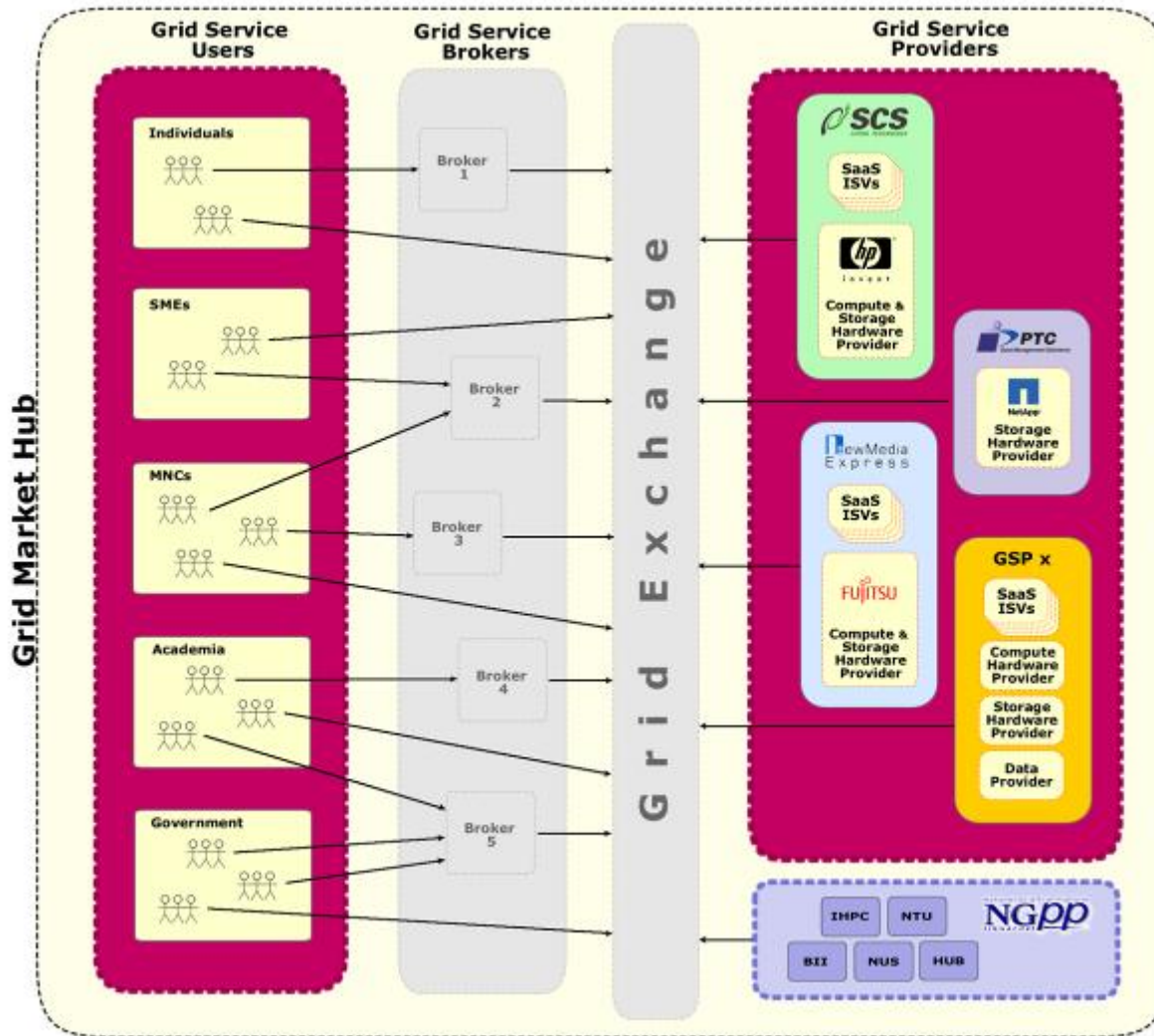
22 April 2009



Relevance to iN2015 Master Plan

- > Infocomm Infrastructure, Services & Technology Development Sub-committee
 - Proposed establishing an Infocomm Resource Marketplace (IRM) that would allow businesses & companies to share, buy & sell infocomm resources such as software, computing & storage resources on an “on demand” basis
 - The flexibility would enable new business delivery models & encourage innovation of infocomm services

Towards IRM



Objectives of Grid Service Provisioning

- > Accelerate deployment of software, hardware & storage utility provisioning for users in public & private sectors
- > Catalyze demand for utility model
- > Develop ISV ecosystem that enables SaaS to flourish

- > Strategic Objectives
 - Enable Infocomm infrastructure development for vertical clusters
 - Work with GRPs to attract ISVs to deploy software on base infrastructure
 - Establish Singapore as a Shared Services Hub
 - Enable local users, especially SMEs, to exploit SaaS for HR, finance, IT & other admin functions

Benefits to Users

- > Little upfront capital investment tied down with (depreciating) hardware & (obsolescing) software
 - Positive impact on balance sheet with shift from Capex to Opex
- > Improved
 - Price for performance
 - Flexibility, agility & time-to-market
 - Robustness
 - Scalability

NME-Led Consortium (aka nGrid)



> Consortium

- NewMedia Express, Fujitsu Asia, 1-Net Singapore, Microsoft Singapore

> Provisioning

- Starting with 200 processor cores & 5 TB of storage
- Offers compute, storage & SaaS
- Co-located at 1-Net Data Center at technopark@chaichee

> Business

- Targets SMEs
- Provides
 - Media streaming service
 - Digital media content management service
 - Web hosting service
- MediaCorp as anchor tenant

SaaS Offerings – nGrid

ISVs	Solution
Parallels	Business Automation, Web Based website builder & server management
cPanel	Server management & provisioning
Pantropic	Remote backup services
Wired-Media	E-Commerce & content management
1-Net Singapore	Digital Media hosting & delivery
Accolade Global	Hosted content management system
Content Management AG	Online Drive
AdvancedERP	ERP Related solutions
Microsoft	Hosted Software Suite, CRM
ClearManage	Grid Engine & Cluster management Software
VMware	Virtualization Platform

SCS-Led Consortium



> Consortium

- Singapore Telecommunications & Hewlett-Packard

> Provisioning

- Starting with 2,400 processor cores & 16 TB of storage
- Offers compute, storage, & SaaS
- Located at SCS Data Center @ Bedok



SaaS Offerings



ISV	Solution
Alpsoft- Atempo	Live Backup
Aksaas	LiveSME
Melioris Pte Ltd	Finance Solution (Receivables, Collections & AC Payable)
Webtopmaker	Recruitment compliance
JusFeedback (Vovici)	Online feedback solution
Avartis Pte Ltd	Rule base Apps
Cnetric	Websphere Ecommerce
BLC Solutions	Product Lifecycle Management (PLM)
Resolvo	Information leakage detection & protection (ILDPA)
BoxSentry	Email filtering solution

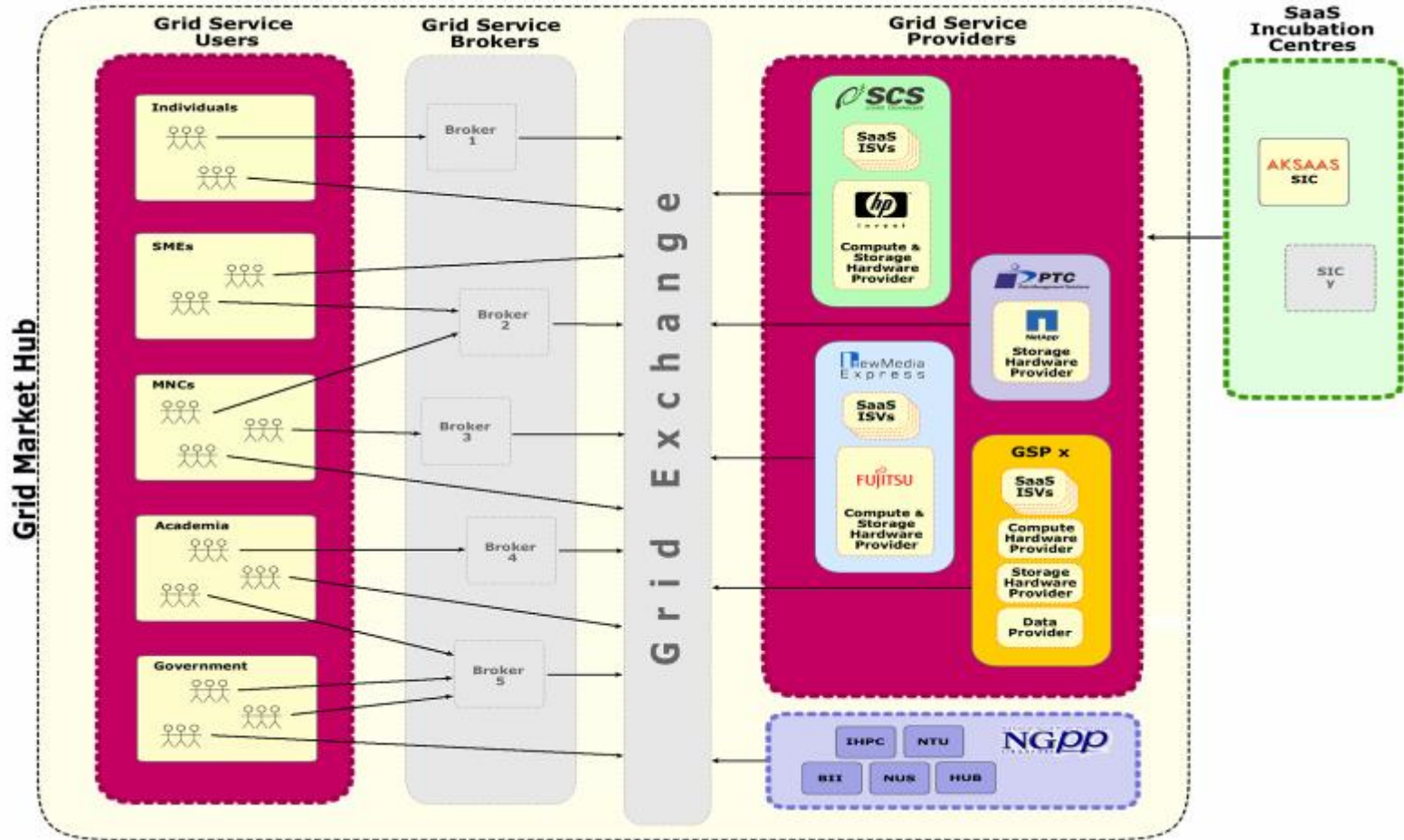
PTC System



- > Storage supplier NetApp
- > Provisioning
 - Starting with 12 TB of storage
 - Offers Storage-as-a-Service
- > Business
 - Target for Storage Access
 - Institutes of Higher Learning
 - Research Institutes
 - Target for Archival (Tape-less Backup)
 - Any company
 - Co-located at Republic Polytechnic with SingAREN network connectivity to leverage on huge pipes to target customers

Solutions	Target Market
Storage Archival	RIs & IHLs
BioMirror	Biomedical Organizations

Towards IRM



> Aksaas Pte Ltd

- Former incubatee of A*STAR Exploit Technologies

> Equip industry & consumers with on-demand & pay-as-you-use access to grid computing capabilities to deliver new & innovative business models

> Provide a staging area for SaaS ISVs

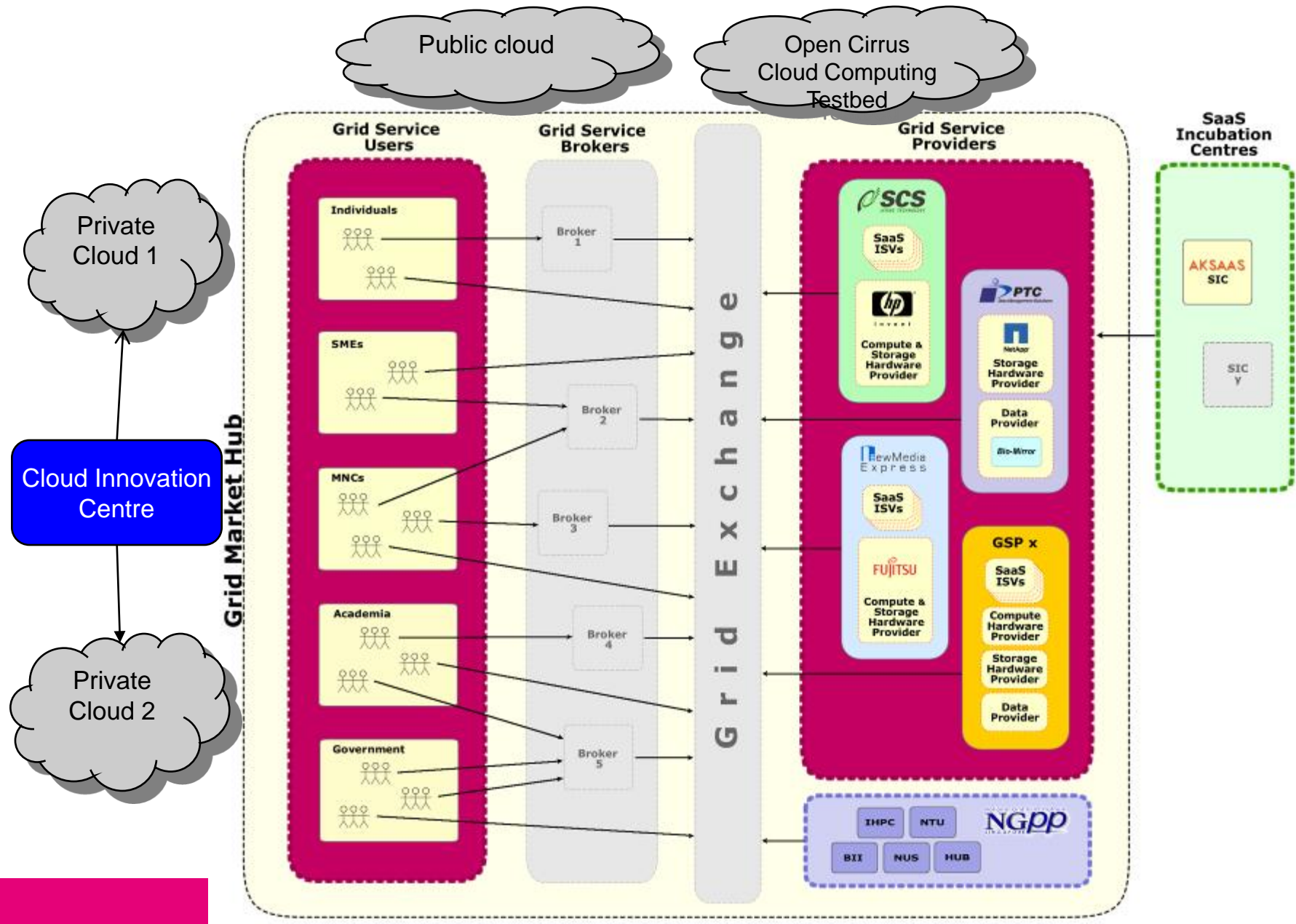
1. Testing & initial commercialisation for new SaaS providers
2. Integration with SaaS provisioning – portal & billing system
3. Technology augmentation
4. Implement POCs for industry consortia
5. Demonstration to end user customer

> Target: 100 SaaS ISVs for incubation over 3 years

Beyond Grids to Clouds

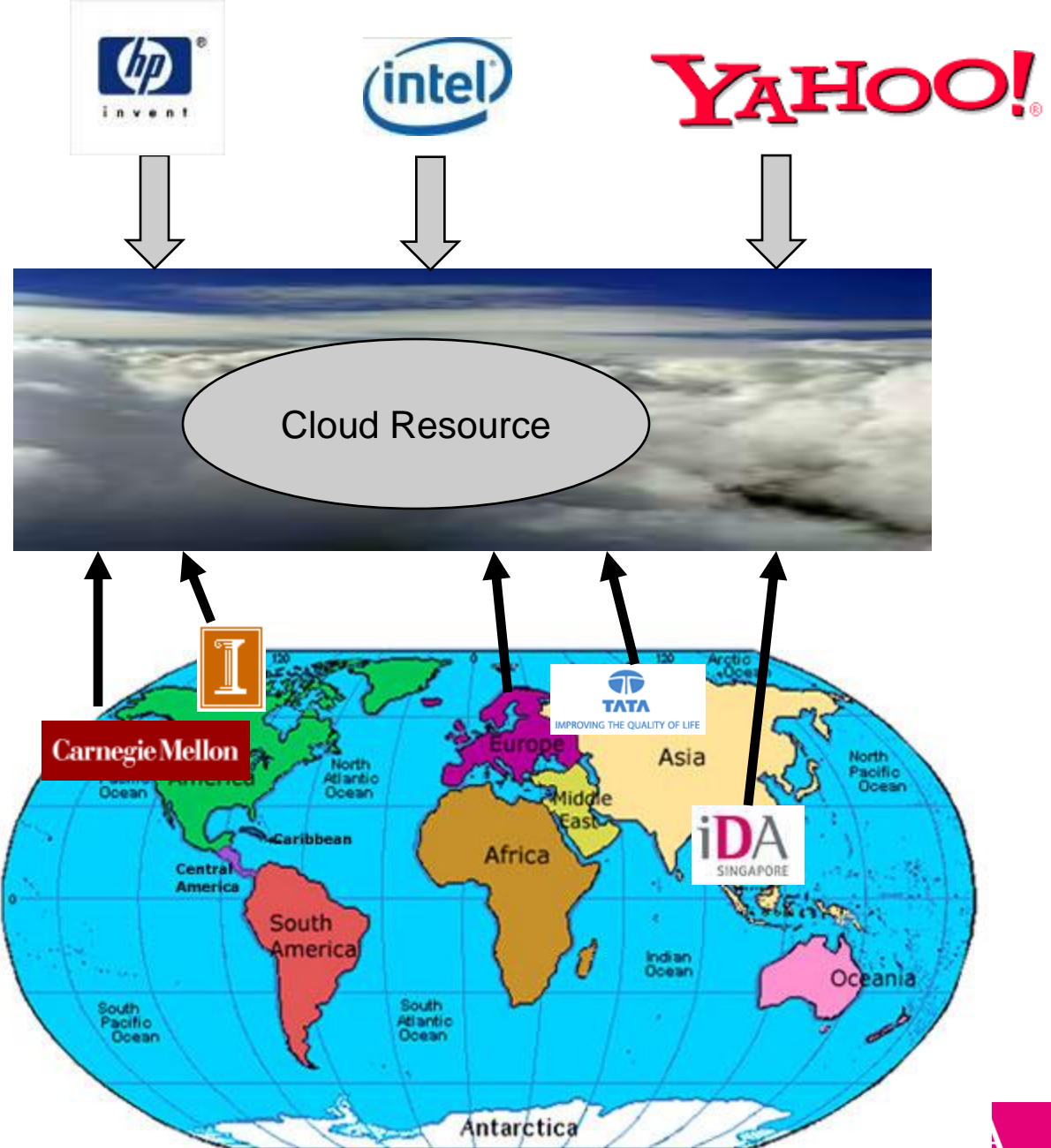
3 Strategic Thrusts for Cloud Computing

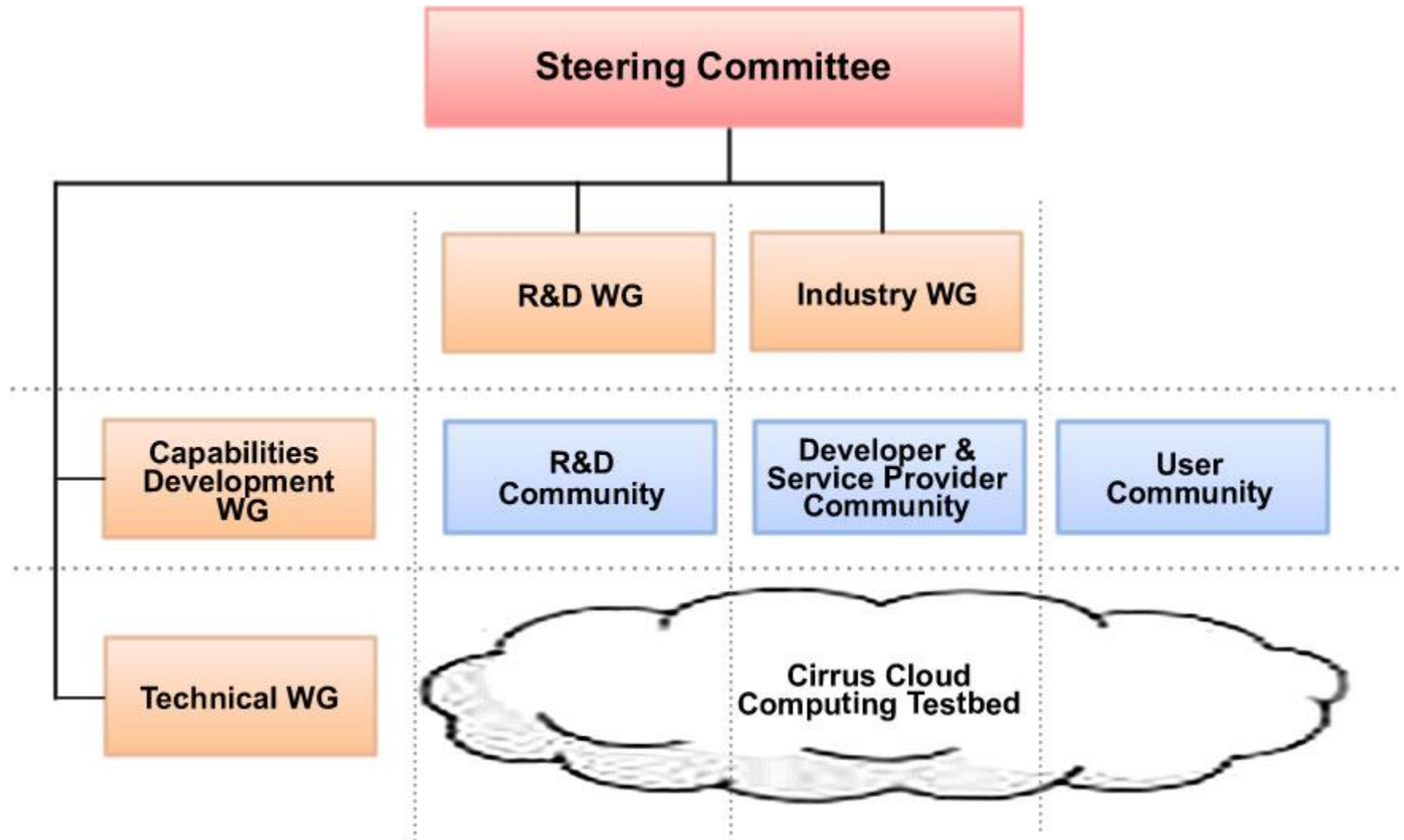
- > Collaborating with like-minded companies from private sector to attract leading Cloud Computing providers to grow ecosystem here
- > Identifying & encouraging flagship adoption by verticals such as finance, healthcare, SMEs, HPC, analytics & mobility
- > Nurturing capability of local infocomm companies & workers to support needs of Cloud Computing service providers & end-users
 - Establish necessary framework & incentives for companies & research institutes to upgrade their competencies
 - Attract high value cloud computing R&D & services development investments into Singapore



Open Cirrus Cloud Computing Testbed

- An open, scalable, secure, global testbed for cloud computing activities
- Target at academic research, commercial software developers & SME users
- Setup 3-5 clusters (each with 1-4000 cores & 1-5 PB Storage) in
 - US (UIUC/CMU)
 - Europe (KIT)
 - AP (IDA)
 - BRIC (India Tata CRL)
- Yahoo promoting Hadoop
- HP position as research collaboration in cloud computing globally



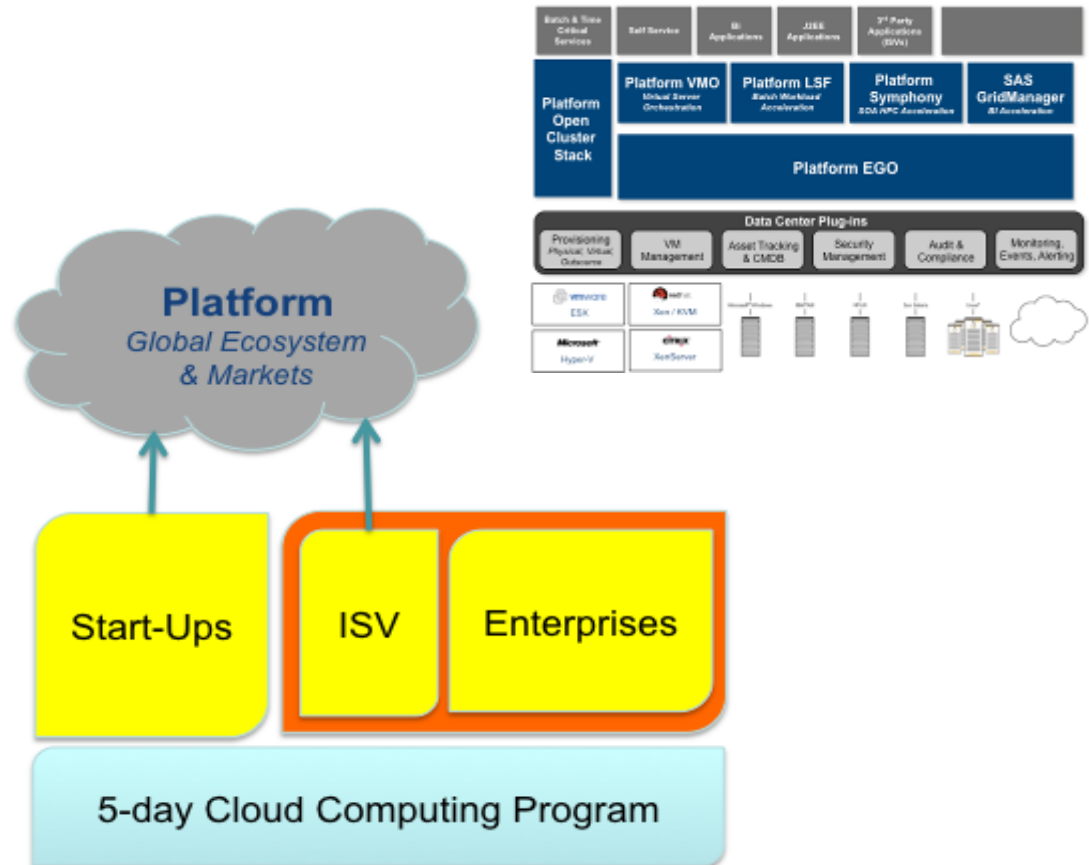


Cloud Innovation Centre (CIC)

➤ CIC is based at Platform Computing's Fusionopolis office

* Cloud software

- Full-time technical consultants to assist Start-ups, ISV & Enterprises to adopt Cloud during POC & Pilots trials
- Comprehensive 5-day Cloud training program



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